

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, the 4<sup>th</sup> paragraph on page 13 has been amended.

Claims 16, 20-22, 25 are requested to be cancelled.

Claims 1, 4, 6-8, 12, 14, 15, 17-19, and 23 are currently being amended.

Claims 32, 33, and 34 are being added.

This amendment adds, changes and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-15, 17-19, 23, 24, and 26-34 are now pending in this application. Claims 3, 8-11, 14, 18 and 26-31 stand withdrawn.

Claims 32, 33 and 34 are new independent claims based on the subject matter of claims 6, 13 and 23, indicated by the Examiner to be allowable and re-written to include the limitations of base claim 1, and the intervening claims 16, 20-22 and 25-31 are cancelled. Claims 1-15, 17-19, 23 and 24 remain in the application.

Claim 1 has been amended to clarify the invention. Claim 1 remains generic to all species of the invention. Claim 1 has been amended to include a pair of plates which separate the stack of heat transfer plates. The fluid connector has been further defined as “extending between the pair of connecting grid plates”.

An Office Action was issued by the Patent Office on July 26, 2004. The Examiner objected to the drawings and rejected claims 1, 2, 4, 5, 7, 12, 15-17, 19, 20, 22, 24, and 25. The drawings were objected to for failure to comply with 37 C.F.R. 1.84(p)(4). Claim 20 was

rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 1, 2, 15, 16, 19, 24 and 25 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Pat. No. 5,988,270 issued to Chevallier (“Chevallier”). Claims 1, 2, 4, 5, 7, 12, 15-17, 20, 22, 24, and 25 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Pat. No. 5,561,981 issued to Quisenberry et al. (“Quisenberry”). The Examiner indicated that claims 6, 13, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

We first turn to the objection to the drawings and the rejection of claim 20 under 35 U.S.C. §112. It is submitted the description on page 13 of the specification requires correction rather than the drawings. Thus, reference 504 correctly designates the opening in grid plate 505 in Figure 5 and the other grid plate is designated by reference 506. The description requires amendment on page 13, lines 22 and 25 to change plate (504) to plate (506). The correction is shown in the amendments to the specification section of this amendment. As such, the Examiner’s objection to the figures is moot. The rejection of claim 20 is also moot as this claim has been cancelled by the amendment.

Referring now to claim 1, the amendments are best understood by referring to Figure 7 which was elected for examination. A heat exchanger is provided with a connecting grid comprising a pair of plates (705,706) that separate a stack of heat transfer plates into two groups, one on each side of the connecting grid (see Figure 1). A fluid connector (700) is provided having a tubular body having outwardly directed flanges (701,702) formed integrally from a wall of the tubular body. As shown, the tubular body extends between the connecting grid plates (705,706) and the flanges (701,702) sealingly connect the tubular body to the connecting grid plates (705,706). In this way, the connections between the flanges (701,702) and the connecting grid plates (705,706) are made inboard the edge of the stack of plates. In the embodiment of

Figure 7, each connecting grid plate (705,706) has an aperture in which an insert (717,718) is received. One of the inserts (717) is a blanking disc that prevents fluid flow between the tubular body and the group of heat transfer plates arranged on one side of the connecting grid. The other insert (718) is a structural ring providing an opening for fluid flow between the tubular body and the group of heat transfer plates on the other side of the connecting grid. The blanking disc may be replaced by a structural ring and vice versa enabling the tubular body to communicate with either one or both groups of heat transfer plates on either side of the connecting grid.

Claim 1 has been amended to introduce the feature of the two plates (705,706) of the connecting grid with the tubular body of the fluid connector (700) extending between the plates (705,706) and having an integral outwardly directed flange (702) that sealingly connects the tubular body to a first group of heat transfer plates on one side of the connecting grid via an opening in one of the connecting grid plates (706). As will be understood from the explanation above, a second group of heat transfer plates on the other side of the connecting grid may be connected to a further flange of the same connector or to a flange of another, separate connector by replacing the blanking disc of Figure 7 with a structural ring,

Chevallier discloses a plate exchanger having a stack of plate pairs where one pair (20,22) is provided with a pipe connection (18) to which a flow pipe (28) is secured by a clamping ring (48) arranged to deform a coupling sleeve (34) attached to the pipe connection (18). The Examiner has stated that plates (20,22) provide a connecting grid and flow pipe (28) provides a tubular body with an outwardly directed flange.

It is clear that the pipe connection (18) is a spigot common to both plates (20,22) and the outwardly directed flange of flow pipe (28) is formed in situ by deforming the flow pipe (28) with the clamping ring (48) when the fluid connection is made. As can be seen in Figure 1 of Chevallier, the fluid connection is made outside of the edge of the stack of plates and is common to the plate packs (12,14) on either side of the plates (20,22). There is absolutely no disclosure in Chevallier to provide a fluid connection between the flow pipe (28) and the plates (20,22) inside of the edge of the stack of plates. Thus, there is no structure in Chevalier corresponding to the

feature of claim 1 where a fluid connector extends between a pair of connecting grid plates and has a tubular body with an outwardly directed flange to sealingly connect the body to a fluid channel between a group of heat transfer plates on one side of the connecting grid via an opening in one of the connecting grid plates.

Furthermore, the Examiner has not cited to any prior art disclosing this figure, nor shown any motivation to modify Chevallier to provide a fluid connection between a flow pipe and plates inside of the edge of the stack of plates. Accordingly, it is submitted that amended claim 1 is neither anticipated nor rendered obvious by Chevallier. The remaining claims are ultimately dependent on base claim 1 and thus include the limitations of the base claim. It is submitted that these claims are therefore allowable for at least these same reasons.

Claims 1, 2, 4, 5, 7, 12, 15, 16, 17, 20, 22, 24 and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by and under 35 U.S.C. §103(a) as being obvious over Quisenberry. Claim 25 has been cancelled and the rejection of the other claims over Quisenberry is respectfully traversed for the following reasons.

Quisenberry discloses a heat exchanger assembly for an array of thermoelectric cooling (TEC) devices. The TEC devices are mounted on opposite sides of a heat absorption heat exchanger (10B) that is sandwiched between upper and lower cooling banks of a heat dissipation heat exchanger (10A). The heat absorption heat exchanger has two plates (90,96) defining a serpentine flow path (103) between an inlet (104) and an outlet (106) that are provided with an internal screw thread to receive inlet and outlet fluid connectors (33,35). The Examiner considers plates (90,96) provide a connecting grid and the threaded portions of the connectors (33,35) provide outwardly directed flanges.

It is clear that fluid flows through the heat exchanger (106) along the serpentine flow path between the inlet (104) and outlet (106) and is confined to that flow path. There is absolutely no disclosure or suggestion in Quisenberry to provide a fluid connection between the heat absorption heat exchanger (106) and either of the upper and lower banks of the heat dissipation

heat exchanger (10A) on either side of the heat absorption heat exchanger (10B). There is no structure in Quisenberry corresponding to the feature of claim 1 where a fluid connector extends between a pair of connecting grid plates and has a tubular body with an outwardly directed flange to sealingly connect the body to a fluid channel between a group of heat transfer plates on one side of the connecting grid via an opening in one of the connecting grid plates.

Accordingly, it is submitted that amended claim 1 is neither anticipated nor rendered obvious by Quisenberry. The remaining claims are ultimately dependent on base claim 1 and thus include the limitations of the base claim. It is submitted that these claims are therefore allowable for at least these same reasons.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

As Applicants believe claim 1 is currently allowable and is a generic claim, upon allowance of claim 1, Applicants will be entitled to consideration of the claims 3, 8-11, 14, 18, and 21 which are drawn to the additional non-elected species and which depend from claim 1.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1450. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1450. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1450.

Respectfully submitted,

Date 11-24-04

By 

FOLEY & LARDNER LLP  
321 North Clark Street  
Suite 2800  
Chicago, Illinois 60610-4764  
Telephone: (312) 832-4559  
Facsimile: (312) 832-4700

Matthew E. Martin  
Attorney for Applicants  
Registration No. 53,274